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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,947	02/27/2004	Deepika Srinivasan	24174-08750	5800

758 7590 12/20/2007

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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
12/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/789,947	SRINIVASAN ET AL.
	Examiner	Art Unit
	Chikaodili E. Anyikire	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 28 September 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-58 is/are pending in the application.

4a) Of the above claim(s) 17-19 and 21 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16,20 and 22-58 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 February 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed September 28, 2007 have been fully considered but they are not persuasive. Claims 1-58 are currently pending.

2. Claims 1-18 and 20-55 rejected under 35 U.S.C. 102(e) as being anticipated by Biswal et al (US 7,197,074).

3. The applicant argues that the reference, Biswal et al, does not teach a variable threshold for the number of phase peaks. The examiner respectfully disagrees. The reference discloses a resolution setting (Fig 1, element 115) which controlled the block size (variable threshold), which would control the size of the correlation surface and therefore the number of phase peaks that the system would be able to obtain also , ranker (Col 6 Ln 5-55). The purpose of changing the block size would be due to the difficulty of the video being processed (Col 4 Ln 45-67).

4. Furthermore, the applicant argues that the reference, Biswal et al, does not teach selecting a motion vector that minimizes a distortion measure between blocks of the predicted frame and a reference block. The examiner respectfully disagrees. The reference discloses a maximum margin of error, but though there is error does not mean that the distortion is not minimized. The reference also discloses assigning a candidate motion vector, only one motion vector, and ensures that the motion vector is valid and is not outside a certain error threshold (Fig 1, 120 and 122; Col 5 Ln 62- Col 19). Therefore, the applicant has not argued persuasively the novel characteristics in the pending application.

5. Claims 6 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswal et al (US 7,197,074) in view of Zhang et al (US 6,449,312).

6. The applicant argues that the reference, Zhang et al, does not disclose a search window that is equivalent to the phase correlation block. The examiner respectfully disagrees. The reference discloses that the motion vector magnitude which relates to a block of encoding. Therefore, the applicant has not argued persuasively the novel characteristics in the pending application.

7. Claims 10-11 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7,197,094) in view of Aude, Ario; "A Tutorial in Coherent and Windowed Sampling with A/D Converters". February 1997.

8. The applicant argues that the reference, Aude, does not disclose analyzing every candidate motion vector. The examiner argues that the applicant does not explicitly claim analyzing every candidate motion vector. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., analyzing every candidate vector) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

9. Also the examiner argues that Aude discloses the methods of window sampling claimed in claims 10 and 11. Therefore, the applicant has not argued persuasively the novel characteristics in the pending application.

10. Claims 19-21 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7,197,074) in view of Biswas et al; "A Novel Motion Estimation Algorithm Using Phase Plane Correlation for Frame Rate Conversion", November 2002.

11. The applicant argues that the references, Biswas et al, do not teach a number of correlation peaks as a function of a variance. The examiner respectfully disagrees. The examiner would like to also point that the applicant cancelled claim 19, which addresses the peaks being related to variance. Also that section 3 of Biswas et al ("A Novel Motion Estimation Algorithm Using Phase Plane Correlation for Frame Rate Conversion") does in fact read on variance not explicitly but teaches a process of variance due to the peaks.

A detailed rejection addressing the newly added limitations follows.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-18 and 20-56 and 58 rejected under 35 U.S.C. 102(e) as being anticipated by Biswas et al (US 7, 197, 074).

As per claim 1, Biswas et al disclose a computer implemented method of determining a motion vector for encoding a block of a predicted frame with respect to a reference frame, the method comprising (Fig 1, Col 3 Ln 15-16):

setting a variable threshold for a number of phase correlation peaks according to an encoding parameter for controlling encoding speed and image quality (Fig 1, 115; Col 4 Ln 45-67)

determining a variable number of phase correlation peaks between a phase correlation block of the predicted frame and a corresponding phase correlation block of the reference frame, the phase correlation block of the predicted frame including the block , the variable number corresponding to the variable threshold (Fig 4, Correlation surface 400; Col 4 Ln 49-52 and Col 6 Ln 9-12);

determining for each phase correlation peak, a motion vector (Col 4 Ln 49-52); and

selecting from the motion vectors, a motion vector that minimizes a distortion measure between the block and a reference block offset from the block by motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 2, Biswas et al disclose a computer implemented method of claim 1, wherein determining at least one phase correlation peak between a phase correlation block of the predicted frame and a corresponding phase correlation block of the reference frame, comprises:

applying a Fourier transform to a phase correlation block of predicted frame and a corresponding phase correlation block of the reference frame (Fig 1, 104, Col 3 Ln 55-61 and Col 4 Ln 16-18);

determining a normalized cross product of the Fourier transforms (Fig 1, 108 and 110, Col 4 Ln 31-44);

determining an inverse Fourier transform to obtain a phase correlation surface (Fig 1, 112; Col 4 Ln 45-49); and

determining at least one peak on phase correlation surface (Col 4 Ln 49-52).

As per claim 3, Biswas et al disclose the computer implemented method of claim 1, wherein determining at least one phase correlation peak, comprises:

determining for each peak a motion vector (Col 4 Ln 49-52);

selecting from the determined motion vectors, a motion vector that minimizes a distortion measure between the block and a block of the reference frame offset from the block by the motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 4, Biswas et al disclose the computer implemented method of claim 1, wherein selecting a motion vector, comprises:

applying each of the motion vectors to the block to obtain the reference block in the reference frame (Col 5 Ln 14-19);

selecting the motion vector that minimizes a distortion measure between the block and the reference block (Col 5 Ln 62- Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 5, Biswas et al disclose the computer implemented method of claim 1, wherein each phase correlation block has horizontal and vertical dimensions that are a function of a maximum magnitude of the motion vectors (Col 4 Ln 19-24).

As per claim 7, Biswas et al disclose the computer implemented method of claim 1, further comprising:

applying to the phase correlation block of the predicted frame a windowing function prior to determining the at least one phase correlation peak (Fig 1, 102; Col 3 Ln 45 – 54).

As per claim 8, Biswas et al disclose the computer implemented method of claim 7, wherein the windowing function reduces discontinuity between adjacent phase correlation block (Fig 1, 102, Col 3 Ln 45 – 54).

As per claim 9, Biswas et al disclose the computer implemented method of claim 7, wherein the windowing function is a smoothing function at the edges of the phase correlation block (Fig 1, 102, Col 3 45 – 54 and Col 3 Ln 65 – Col 4 Ln 2).

As per claim 12, Biswas et al disclose the computer implemented method of claim 1, wherein phase correlation blocks of the predicted frame are non-overlapping (Fig 5, Col 5 Ln 14 –38).

As per claim 13, Biswas et al disclose the computer implemented method of claim 1, wherein phase correlation blocks of the predicted frame are overlapping (Col 3 Ln 62 – Col 4 Ln 9).

As per claim 14, Biswas et al disclose the computer implemented method of claim 13, wherein the phase correlation blocks overlap by a minimum overlap value,

where the minimum overlap value is greater than or equal to a maximum magnitude of the motion vectors (Col 3 Ln 62 – Col 4 Ln 9).

As per claim 15, Biswas et al disclose the computer implemented method of claim 13, wherein selecting from the motion vectors comprises selecting from the motion vectors associated with all phase correlation blocks that include the block (Col 5 Ln 62 – Col 6 Ln 5).

As per claim 16, Biswas et al disclose the computer implemented method of claim 1, wherein determining a number of phase correlation peaks comprises:

As per claim 22, Biswas et al disclose the computer implemented method of claim 1, wherein selecting a motion vector comprises:

selecting a first motion vector which reduces the distortion measure below a threshold value (Col 5 Ln 46 – 50).

As per claim 23, Biswas et al disclose the computer implemented method of claim 22, wherein the threshold is a fixed distortion threshold (Col 5 Ln 46 – 50).

As per claim 24, Biswas et al disclose the computer implemented method of claim 22, wherein the threshold is an adaptive distortion threshold (Col 5 Ln 46 – 54).

As per claim 25, Biswas et al disclose the computer implemented method of claim 24, wherein the adaptive distortion threshold is a minimum distortion measure of a plurality of neighboring blocks (Col 5 Ln 46 – 54).

As per claim 26, Biswas et al disclose a method of determining motion vectors for encoding a predicted frame with respect to a reference frame, the method comprising:

setting a variable threshold for a number of phase correlation peaks according to an encoding parameter for controlling encoding speed and image quality;

determining a phase correlation between the predicted frame and the reference frame,

wherein the phase correlation produces a phase correlation surface including a number of phase correlation peaks corresponding to the variable threshold (Fig 4, Correlation Surface 400; Col 4 Ln 19 – 49 and Col 6 Ln 9-12); and

determining the motion vectors for encoding the predicted frame from motion vectors defined by locations of the phase correlation peaks on the phase correlation surface (Col 4 Ln 49 – 52 and Col 7 Ln 4-11).

As per claim 27, Biswas et al disclose a computer implemented method of determining motion vectors for encoding blocks of a predicted frame with respect to a reference frame, the method comprising:

setting a variable threshold for a number of phase correlation peaks according to an encoding parameter for controlling encoding speed and image quality;

dividing the predicted frame and the reference frame into a plurality of phase correlation blocks, each phase correlation block including a number of blocks (Col 3 Ln 55 – 61);

for each phase correlation block in the predicted frame, determining a number of phase correlation peaks corresponding to the variable threshold between the phase correlation block and a corresponding phase correlation block of the reference frame,

and for each phase correlation peak, determining an associated motion (Col 4 Ln 19 – 52 and Col 6 Ln 9-12); and

for each phase correlation block I the predicted frame, and for each block to be predicted in the phase correlation block; selecting from the motion vectors associated with the phase correlation block, a motion vector that minimizes a distortion measure between the block and a reference block in the reference frame offset from the block from the block by the motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 28, arguments analogous to those presented for claim 1 is applicable to claim 29.

As per claim 29, arguments analogous to those presented for claim 2 is applicable to claim 29.

As per claim 30, arguments analogous to those presented for claim 3 is applicable to claim 30.

As per claim 31, arguments analogous to those presented for claim 4 is applicable to claim 31.

As per claim 32, arguments analogous to those presented for claim 5 is applicable to claim 32.

As per claim 34, arguments analogous to those presented for claim 7 is applicable to claim 34.

As per claim 35, arguments analogous to those presented for claim 8 is applicable to claim 35.

As per claim 36, arguments analogous to those presented for claim 9 is applicable to claim 36.

As per claim 39, arguments analogous to those presented for claim 12 is applicable to claim 39.

As per claim 40, arguments analogous to those presented for claim 13 is applicable to claim 40.

As per claim 41, arguments analogous to those presented for claim 14 is applicable to claim 41.

As per claim 42, arguments analogous to those presented for claim 15 is applicable to claim 42.

As per claim 43, arguments analogous to those presented for claim 16 is applicable to claim 43.

As per claim 44, arguments analogous to those presented for claim 17 is applicable to claim 44.

As per claim 45, arguments analogous to those presented for claim 18 is applicable to claim 45.

As per claim 49, arguments analogous to those presented for claim 22 is applicable to claim 49.

As per claim 50, arguments analogous to those presented for claim 23 is applicable to claim 50.

As per claim 51, arguments analogous to those presented for claim 24 is applicable to claim 51.

As per claim 52, arguments analogous to those presented for claim 25 is applicable to claim 52.

As per claim 53, arguments analogous to those presented for claim 26 is applicable to claim 53.

As per claim 54, arguments analogous to those presented for claim 1, 26, and 27 is applicable to claim 54.

As per claim 55, arguments analogous to those presented for claim 1 is applicable to claim 55.

Regarding claims 56, arguments analogous to those presented for claim 1 are applicable for claim 56.

Biswas et al further discloses the number of phase peaks determined as a function of a size of the block to be predicted (Col 4 Ln 45-67 and Col 5 Ln 4-8).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claims 6 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7, 197, 074) in view of Zhang et al (US 6, 449, 312).

As per claim 6, Biswas et al discloses the search window dimensions are integers of powers 2.

However, Biswas et al does not disclose the search window dimensions greater than 2S+16 in horizontal and vertical direction, respectively.

In the same field of endeavor, Zhang et al disclose motion estimation for a current macroblock (conventionally 16x16 pixels (Fig 1, image block 2; Col 2 Ln 37-40; Col 3 Ln 29-35)). Zhang et al further disclose that the search window of motion displacement can be as large as 128 pixels (Col 1 Ln 36-43; search windows are conventionally 32x32, 64x64, 128x128, etc., wherein all M and N are integers each a power of 2). Considering search window 4 in Fig 1 being a motion of 128x128, the maximum horizontal and vertical components of MV97) will be 32 pixels. The configuration meets the (i.e., S_h and S_v) relation N or M > $2S_h16$ or $2S_v+16$.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the search window function of Zhang et al because a larger search areas will result in more accurate motion estimation and enhanced image quality.

As per claim 33, arguments analogous to those presented for claim 6 is applicable to claim 33.

17. Claims 10-11 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7, 197, 074) in view of Aude, Ario. "A Tutorial in Coherent and Windowed Sampling with A/D Converters". February 1997.

As per claim 10, Biswas et al disclose the computer implemented method of claim 7.

However, Biswas et al does not explicitly each wherein the windowing function is an extended 2D cosine bell function.

In the same field of endeavor, Aude discloses wherein the windowing function is an extended 2D cosine bell function (page 7, Extended Cosine Bell).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the window function of Aude. The advantage of window function is that it prevents leakage in a signal and performing 2D cosine bell windowing function is a well-known procedure conventionally implemented prior to Fourier Transformation.

As per claim 11, Biswas et al disclose the computer implemented method of claim 10.

However, Biswas et al disclose the windowing function is:

$$W(m,n) = \begin{cases} \frac{1}{2}\left[1-\cos\left(\frac{16*m*\Pi}{M}\right)\right]*\frac{1}{2}\left[1-\cos\left(\frac{16*n*\Pi}{N}\right)\right] ...for\left(\frac{M}{16} \le m...or...m \ge \frac{15*M}{16}\right)and\left(\frac{N}{16}\right. : \\ 1...otherwise. \end{cases}$$

where M is a width of a phase correlation block and N is a height of a phase correlation block.

In the same field of endeavor, Aude teaches the windowing function which is analogous to windowing function of claim 11:

$$A = \begin{cases} \frac{1}{2}\left[1-\cos\left(\frac{16*t*\Pi}{T}\right)\right] ...for(t = 0..to...T/10...and..t = 9T/10..to...T), and \\ A = 1..for..t = T/10..to...9T/10. \end{cases}$$

where M is a width of a phase correlation block and N is a height of a phase correlation block (pg7, extended cosine bell selecting a denominator of 16 instead of 10 is an obvious option for image processing).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to consider an interval of 1/16 instead of 1/10 (conventional interval in image coding) to obtain:

$$W(m,n) = \begin{cases} \frac{1}{2}\left[1-\cos\left(\frac{16*m*\Pi}{M}\right)\right] * \frac{1}{2}\left[1-\cos\left(\frac{16*n*\Pi}{N}\right)\right] ...for\left(\frac{M}{16} \leq m...or...m \geq \frac{15*M}{16}\right) and \left(\frac{N}{16} \leq n...or.\right. \\ 1...otherwise. \end{cases}$$

. The advantage of window function is that it prevents leakage in a signal and performing 2D cosine bell windowing function is a well-known procedure conventionally implemented prior to Fourier Transformation.

As per claim 37, arguments analogous to those presented for claim 10 is applicable to claim 37.

As per claim 38, arguments analogous to those presented for claim 11 is applicable to claim 38.

18. Claims 20, 21, 47, 48, 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7, 197, 074) in view of Biswas et al. "A Novel Motion

Estimation Algorithm Using Phase Plane Correlation for Frame Rate Conversion". November 2002 (hereafter Biswas2).

As per claim 20, Biswas et al disclose the computer implemented method of claim 1:

However, Biswas et al does not teach wherein determining at least one phase correlation peak comprises interpolating subpixel peak values from the phase correlation peaks at pixel locations in the phase correlation block.

In the same field of endeavor, Biswas et al teach wherein determining at least one phase correlation peak comprises interpolating subpixel peak values from the phase correlation peaks at pixel locations in the phase correlation block (Section 4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the method of Biswas et al. The advantage is that it compensates for the speed of motion.

As per claim 46, arguments analogous to those presented for claim 19 is applicable to claim 46.

As per claim 47, arguments analogous to those presented for claim 20 is applicable to claim 47.

As per claim 48, arguments analogous to those presented for claim 21 is applicable to claim 48.

Regarding claim 57, arguments analogous to those presented for claim 1 are applicable for claim 57.

Biswas et al further discloses the number of phase peaks determined as a function of a variance of the values of the phase correlation peaks (Biswas2, Section 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the method of Biswas et al. The advantage is that it compensates for the speed of motion.

Regarding claim 58, arguments analogous to those presented for claim 1 are applicable for claim 58.

Biswas et al further discloses determining for each motion vector, a plurality of subpixel motion vectors near the motion vector (Biswas2, Section 4), and

for each motion vector, selecting one of the plurality of subpixel motion vectors that minimizes a distortion measure between the block and a reference block offset from the block by motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the method of Biswas et al. The advantage is that it compensates for the speed of motion.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chikaodili E. Anyikire whose telephone number is (571) 270-1445. The examiner can normally be reached on Monday to Friday, 7:30 am to 5 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272 - 7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CEA

PRIMARY EXAMINER